

C. Claims

The following is a complete listing of the claims, and replaces all earlier versions and listings.

1. (Previously Presented) A fabrication method of a mold for a microlens having a desired radius (R) of curvature, said method comprising the steps of:
 - (a) preparing a substrate at least a portion of which is electrically conductive;
 - (b) forming an insulating mask layer on the conductive portion of the substrate;
 - (c) forming an opening in the mask layer to expose the conductive portion of the substrate at the opening such that a diameter or width (ϕ) of the opening is $10\mu\text{m} \leq \phi \leq 0.35R$;
 - (d) performing electroplating to form the mold with the desired radius (R) of curvature using the conductive portion of the substrate as a cathode to deposit a plated layer in the opening and on the mask layer; and
 - (e) terminating electroplating when the electroplated layer reaches the desired radius (R) of the curvature after forming a minimum radius (R_{\min}) of curvature.

2-6. (Cancelled)

7. (Previously Presented) The method according to claim 1, wherein said step (d) comprises causing a current to flow between the cathode and an anode plate in an electroplating bath and said step (e) comprises ending the current flow.

8. (Cancelled)

9. (Previously Presented) A fabrication method of a microlens having a desired radius (R) of curvature, said method comprising the steps of:

(a) preparing a substrate at least a portion of which is electrically conductive;

(b) forming an insulating mask layer on the conductive portion of the substrate;

(c) forming an opening in the mask layer to expose the conductive portion of the substrate at the opening such that a diameter or width (ϕ) of the opening is $10\mu\text{m} \leq \phi \leq 0.35R$;

(d) performing electroplating using the conductive portion of the substrate as a cathode to deposit a plated layer in the opening and on the mask layer;

(e) terminating electroplating when the plated layer reaches the desired radius (R) of curvature after forming a minimum radius (R_{\min}) of curvature;

(f) forming a mold on the substrate;

(g) separating the mold from the substrate;

(h) coating a lens material on the mold; and

(i) separating the lens material from the mold.